IN THE CLAIMS:

1. (Currently Amended) A tool for punching a metering orifice extending at an acute angle through a fuel metering disc of a fuel injector along an orifice axis with respect to at least one planar surface of the metering disc, the metering orifice extending between first and second generally planar surfaces spaced along a longitudinal axis of the disc, the tool comprising:

an elongated body extending along a tool axis between a first tool end and second tool end about a tool axis to define a tool perimeter, the first tool end configured to receive a tool punching force, the second end including:

a pilot portion having a first surface disposed on a first plane generally transverse to the tool axis, the first surface including a first surface area offset to the tool axis;

a main portion having a second surface area greater than the first surface area offset to the tool axis, the second surface area disposed on a second plane; and

a transition portion disposed on a third plane generally oblique to the tool axis, the transition portion intersecting the longitudinal axis and connecting the pilot portion and the main portion.

2. (Original) The tool according to claim 1, wherein the second surface area comprises an area disposed on the second plane oblique to the tool axis.

3. (Original) The tool according to claim 2, wherein the second surface area comprises an area approximately 1.8 times the first surface area.

4. (Currently Amended) A [[~~The~~]] tool ~~according to claim 3, wherein~~ for punching a metering orifice extending at an acute angle through a fuel metering disc of a fuel injector along an orifice axis with respect to at least one planar surface of the metering disc, the metering orifice extending between first and second generally planar surfaces spaced along a longitudinal axis of the disc, the tool comprising:

an elongated body extending along a tool axis between a first tool end and second tool end about a tool axis to define a tool perimeter, the first tool end configured to receive a tool punching force, the second end including:

a pilot portion having a first surface disposed on a first plane generally transverse to the tool axis, the first surface including a first surface area offset to the tool axis, the first surface area of the pilot portion ~~comprises~~ includes an area bounded by a first arcuate portion of the perimeter of the second tool end and a first chord connecting the first arcuate portion;

a main portion having a second surface area greater than the first surface area offset to the tool axis, the second surface area disposed on a second plane; and

a transition portion disposed on a third plane generally oblique to the tool axis, the transition portion intersecting the longitudinal axis and connecting the pilot portion and the main portion.

5. (Original) The tool according to claim 4, wherein the second surface area of the main portion comprises an area bounded by a second arcuate portion of the perimeter of the second tool end and a second chord connecting the second arcuate portion.

6. (Original) The tool according to claim 5, wherein the transition portion comprises two arcuate transition segments, each transition segment connecting the first and second chords at the respective ends.

7. (Original) The tool according to claim 6, wherein the second end comprises a generally circular perimeter about the tool axis such that the first and second arcuate portions and the transition segments are coincident with the generally circular perimeter.

8. (Original) The tool according to claim 7, wherein the generally circular perimeter comprises a circular area having a diameter extending through the tool axis of approximately 0.01 inches.

9. (Original) The tool according to claim 8, wherein transition portion comprises a generally planar surface disposed at a first transition angle with respect to the first virtual plane.

10. (Original) The tool according to claim 9, wherein the main portion comprises a generally planar surface area disposed at a second transition angle with respect to the first virtual plane of approximately 10 percent of the first transition angle.

11. (Original) The tool according to claim 10, wherein the first transition angle is approximately 26 degrees.

12. (Original) The tool according to claim 11, wherein a first virtual line bisecting the first surface area has a magnitude of approximately 0.001 inches and a second virtual line bisecting the second surface area has a magnitude of approximately 0.004 inches.

13. (Original) The tool according to claim 2, wherein the elongated body of the tool comprises one of a tool steel material and treated steel material.

14. (Original) The tool according to claim 2, wherein the pilot portion has a surface area bounded by a pilot segment contiguous to the tool perimeter and a first chord connecting the pilot segment, the first chord being spaced from the tool axis at a distance of about 0.0039 inches.

15. (Original) The tool according to claim 14, wherein the main portion has a surface area bounded by a segment contiguous to the tool perimeter and a chord connecting the segment, the chord being spaced at a distance of about 0.0006 inches from the tool axis.

16. (Currently Amended) An arrangement for forming orifices in a workpiece, the arrangement comprising:

a workpiece having a first surface spaced from a second surface along a longitudinal axis, the workpiece having a length longer than its width, the workpiece including respective lateral sides extending generally parallel to each other;

a workpiece retention device having at least two stop members positively engaging the respective lateral sides of the workpiece; and

a tool including:

an elongated body extending along a tool axis between a first tool end and a second tool end about a tool axis to define a tool perimeter, the first tool end configured to receive a tool punching force, the second end including:

a pilot portion having a first surface disposed on a first plane generally transverse to the tool axis, the first surface including a first surface area offset to the tool axis;

a main portion having a second surface area greater than the first surface area offset to the tool axis, the second surface area disposed on a second plane; and

a transition portion disposed on a third plane generally oblique to the tool axis, the transition portion extending through the longitudinal axis and connecting the pilot portion and the main portion.

17. (Currently Amended) A method of forming an orifice through a disc, the orifice having an orifice area defining an opening that extends through the orifice disc along an orifice axis between first and a second generally planar surfaces spaced along a longitudinal axis of the disc, the orifice area being generally planar surfaces spaced along a longitudinal axis of the disc, the orifice area being generally orthogonal to the longitudinal axis, the method comprising:

preventing transverse movement of the disc relative to a support surface on which a portion of the second generally planar surface is disposed thereon; and

displacing material over an area of approximately twenty five percent of the orifice area with a force sufficient to displace the material between the first and second generally planar surfaces so that the displaced material forms a first orifice wall surface extending between the first and second generally planar surfaces at an acute angle with respect to a virtual plane contiguous to the first generally planar surface; and

increasing the surface area on which the force is being applied so that a second orifice wall surface is formed, the second orifice wall surface being in addition to the first orifice wall surface.

18. (Original) The method of claim 17, wherein the preventing comprises constraining the disc from movement in the lateral directions.

19. (Currently Amended) The method of claim 18, wherein the ~~displacing comprises~~ increasing the surface area on which the force is being applied comprises increasing at a generally linear rate from the second surface area.

20. (Currently Amended) The method of claim 19, wherein the increasing comprises removing material so that [[a]] the second orifice wall surface is formed between the first and second generally planar surface at an obtuse angle with respect to the virtual plane.

21. (Original) The method of claim 20, wherein the acute angle is from 60 to 87 degrees, and the obtuse angle is from 93 to 120 degrees.

22. (Original) The method of claim 21, wherein the acute angle is from 80 to 87 degrees and the obtuse angle is from 93 to 100 degrees.